

Chapter 3

Fundamentals of Distribution

"The more I see of war, the more I realize how it all depends on administration and transportation...It takes little skill or imagination to see where you would like your army to be and when; it takes much more knowledge and hard work to know where you can place your forces and whether you can maintain them there."

General A.C.P. Wavell
Quoted in Martin Van Creveld's *Supplying War,
Logistics from Wallenstein to Patton*, 1977

The common thread that linked coalition forces success during the Persian Gulf War was the CSS effort of transporting, sustaining, and maintaining the force. This success was largely due to the unprecedented host nation/military "brute force" CSS effort that served as the theater distribution system.

The Army can no longer afford the inefficiencies of the mass and stovepipe-oriented CSS system that spawned the "brute force" theater distribution effort of the Persian Gulf War. Leveraging available automation and information technology, supporters can now attain the visibility, control, and capacity management capabilities required to transition from a mass and stovepipe system based on functionality to a distribution-based CSS system.

SECTION I. - THE DISTRIBUTION SYSTEM

3-1. Distribution is that functional phase of logistics which embraces the act of dispensing materiel, facilities, services, and the process of assigning military personnel to activities, units, or billets (JP 1-02). It includes all actions performed to deliver required resources (units, materiel, personnel, and services) to, from, and within a theater. Distribution is more than a logistics function; it is an operational art that encompasses all CSS disciplines and functions (see Figure 3-1). It involves synchronizing all of them to generate the focused CSS that provides the right resources at the right time and place.

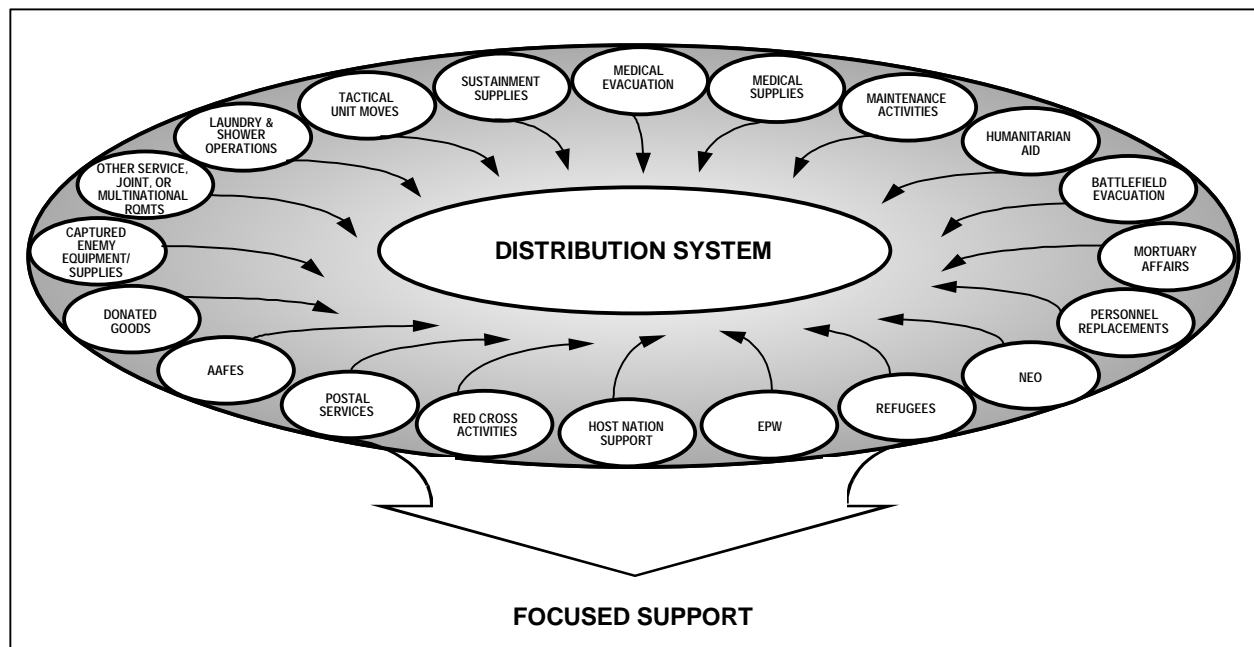


Figure 3-1. The Operational Art of Distribution

3-2. The distribution pipeline is the channel through which the military conducts distribution operations. As depicted in Figure 3-2, it represents the end-to-end flow of resources from supplier to consumer. Resources enter the pipeline at the national strategic or operational level and exit as direct and general support (DS/GS) to tactical forces on the battlefield. Within the pipeline, these resources pass through a complex framework of integrated national/theater-level communications, automation, physical, and resource networks that comprise the distribution system.

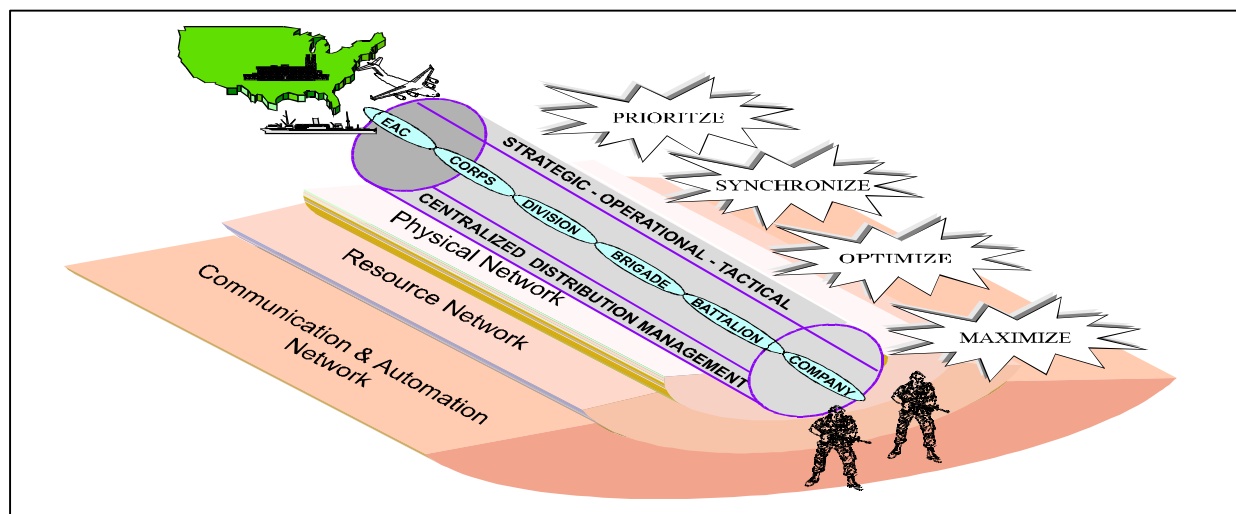


Figure 3-2. The Distribution Pipeline

3-3. The communications and automation networks of the distribution system flow information throughout the strategic, operational, and tactical levels. Using a combination of communications and automation technologies, these networks provide TAV/ITV critical to ensure efficient and effective distribution operations. Emerging automated information systems/technology (AIS/AIT), management information systems (MIS), and Global Combat Support System-Army (GCSS-Army) will further enhance timely and accurate information flow within the system. A more detailed discussion of current and emerging communications/automation networks and systems supporting the distribution system is contained in Chapter 6 of this manual.

3-4. The physical network of the distribution system consists of the quantity and capability of fixed structures and established facilities available to support distribution operations. It includes factories, airfields, seaports, roads, railroads, inland waterways (IWW), pipelines, terminals, road and railroad bridges/tunnels, and buildings. The resource network consists of the people, materiel, and machines operating within and over the physical network of the distribution system. It includes a mix of uniformed and civilian (US/HN government, military, and contractor) organizations and equipment. The combined physical and resource networks make up the infrastructure of the distribution system. Infrastructure capacity (net capability of the combined physical and resource networks) establishes the finite capacity of the distribution system.

3-5. The national strategic level of the distribution system is well established. Sustainment base national providers routinely operate within a mature infrastructure with fixed platform automation and global communications capabilities. Their focus is on anticipating requirements and pushing resources into the distribution pipeline. Production lead time, resource limitations, service capabilities, and strategic transport constrain the distribution system at this level.

3-6. As the distribution pipeline flows from the sustaining base to the soldier on the battlefield, the distribution system's capacity and capability to support resource flow become more constrained (see Figure 3-3). Within a theater, the distribution system is sensitive to available HN infrastructure and communications capabilities. Few potential theaters of operation possess infrastructure and communication network capabilities equal to those at the national strategic level. Joint/multinational military forces and the civilian population share whatever HN infrastructure and communications capabilities exist. In addition, the JFC's operational plan, force caps, and strategic lift constraints may limit the amount of US military resource network capabilities that can be deployed to the theater to augment HN infrastructure capability. These factors lead to inherent imbalances in distribution system capacities at the national strategic and theater strategic, operational, and tactical levels.

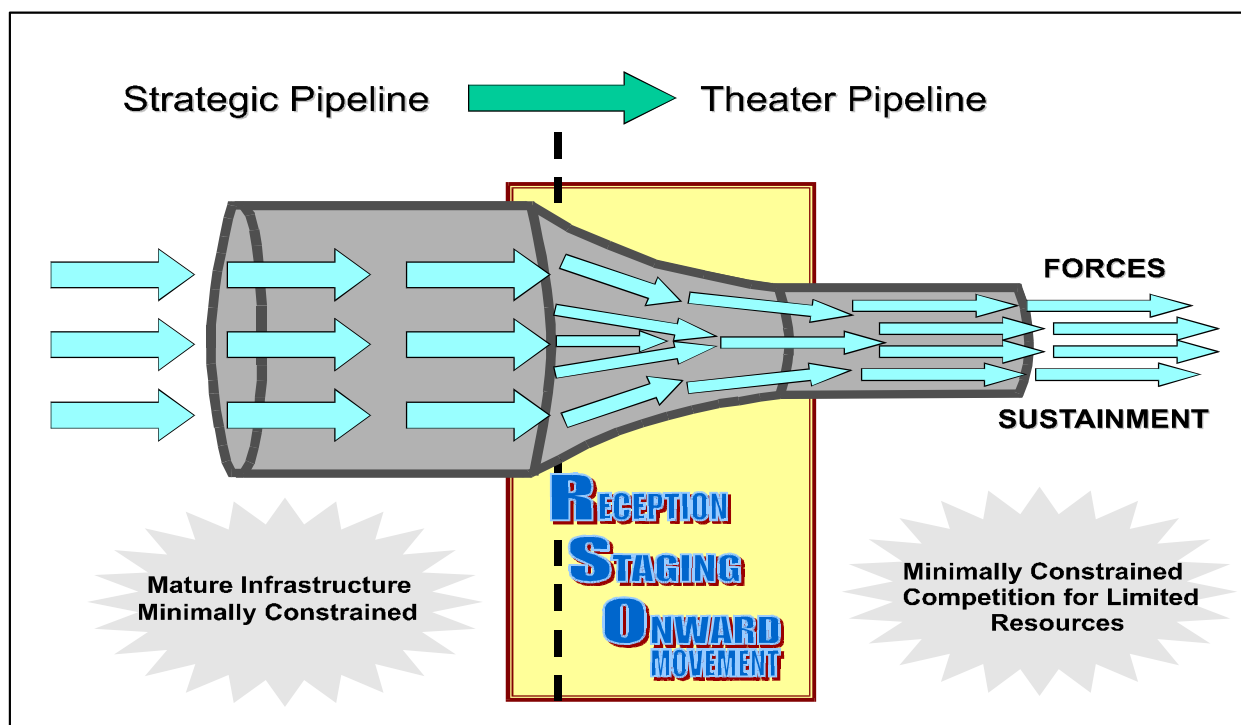


Figure 3-3. Theater Distribution Challenge

SECTION II. - PRINCIPLES OF DISTRIBUTION

3-7. The operational art of distribution is the centerpiece of the end-to-end continuum of a distribution-based CSS system. Distribution is described in JP 4-0 as a function of visibility, management, and transportation. A distribution-based CSS system, includes not only the visibility, management, and transportation of resources flowing through the CSS pipeline, but also of the networks that comprise the distribution system. Thus, the operational art of distribution is also a function of the critical capabilities of visibility, capacity, and control. These critical capabilities are reflected in the five interrelated principles that guide the dispensing of resources through a distribution-based CSS system. The five principles are listed below. When properly employed, these principles enhance the agility of the force. When the distribution manager has visibility of resources and the capability to quickly to get them to where they are required, the commander has the ability to act and react faster than the enemy does.

CENTRALIZE MANAGEMENT

3-8. Centralizing management is essential to efficient and effective distribution system operations. It involves the integrated end-to-end visibility and control of the distribution system capacity and distribution pipeline flow. Designated distribution managers in distribution management

centers (DMCs) of the support operations element at each support echelon manage distribution operations and coordinate and synchronize movement of supplies, personnel, and unit equipment. Materiel management and movement control operations at each echelon are synchronized under the plans and policy office and DMC of the support operations element.

OPTIMIZE INFRASTRUCTURE

3-9. Optimizing infrastructure is essential to maintaining balance within the total distribution system. As discussed earlier, system infrastructure dictates the finite capacity of the distribution system. This principle involves the ability of distribution managers at each echelon to maintain visibility of the infrastructure under their control, and to reallocate or acquire physical and resource network capabilities to meet changing requirements.

MAXIMIZE THROUGHPUT

3-10. Whenever possible, national strategic-level CSS elements use throughput to prepare resources for direct, time definite delivery to a supply support activity (SSA) or assembly area (AA) in an AO. Throughput distribution bypasses one or more echelons in the supply system to minimize handling and speed delivery forward. A distribution-based CSS system emphasizes the use of containerization (within MHE constraints), to include palletization and packaging, to accommodate the AO and improve velocity. Velocity is achieved through the throughput of resources from the sustaining base to tactical-level support organizations.

MINIMIZE FORWARD STOCKPILING

3-11. The velocity of a distribution system reduces the reliance on large stockpiles of resources within an AO. Under this principle, forward stockpiling complements the time definite delivery of resources through the distribution system. It involves the ability to provide the minimum essential stockpiles of supplies and minimum services required to begin operations in a theater, and to augment the continuous and seamless flow of resources within the CSS pipeline. This principle includes the use of APS.

MAINTAIN CONTINUOUS AND SEAMLESS PIPELINE FLOW

3-12. The principle of continuous and seamless pipeline flow involves the application of all other distribution principles to produce the end-to-end continuum of a distribution system. The integrated CSS/C2 automation and communications networks of the distribution system provide the strategic, operational, and tactical connectivity that allows the distribution management structure the capability to maintain continuous and seamless pipeline flow.